Heroin Track

Addressing the Opioid Crisis Begins at the Border

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Moderator: Richard W. Sanders,
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Disclosures

- Christopher M. Jones, PharmD, MPH, Stephen D. McConachie, and Richard W. Sanders have disclosed no relevant, real, or apparent personal or professional financial relationships with proprietary entities that produce healthcare goods and services.
Disclosures

- All planners/managers hereby state that they or their spouse/life partner do not have any financial relationships or relationships to products or devices with any commercial interest related to the content of this activity of any amount during the past 12 months.

- The following planners/managers have the following to disclose:
  - Kelly J. Clark, MD, MBA, FASAM, DFAPA – Consulting fees: Braeburn, Indivior
Learning Objectives

- Describe current epidemiological trends related to synthetic opioids.
- Discuss the economics of illicit fentanyl.
- Outline international control efforts.
- Identify federal public health strategies to address this growing threat.
- Explain the critical role of the U.S. Customs and Border Protection (CBP) in combating illegal opioid smuggling.
- Identify the major elements of CBP strategy to combat the flow of illicit drugs.
- Discuss how can state and local partners and CBP work together to stem the opioid crisis.
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Christopher M. Jones, PharmD, MPH
CAPT, US Public Health Service
Director, National Mental Health and Substance Use Policy Laboratory
Substance Abuse and Mental Health Services Administration
Overview

- Briefly describe the latest epidemiology and trends
- Economic drivers of illicit fentanyl
- International control efforts
- Federal public health response.
Sustained impact of the opioid crisis

Drug Overdose Deaths, 1968-2016

Drug overdose deaths per 100,000 population (age-adjusted)

Source: CDC WONDER, 1968-2016
Opioid overdose deaths at unprecedented levels

Source: CDC National Vital Statistics System
Opioid overdose deaths by race/ethnicity

Source: CDC National Vital Statistics System
Shifts in rates of opioid overdose by age group

Source: CDC National Vital Statistics System
Opioid overdose deaths by opioid type by sex, 2016

Source: CDC National Vital Statistics System
Opioid Overdose Deaths by Rural-Urban Status, 2016

Source: CDC National Vital Statistics System
Fentanyl and Counterfeit Products Broaden At-Risk Population

Multiple Fentanyl Overdoses — New Haven, Connecticut, June 23, 2016

Anthony J. Tomassoni, MD1; Kathryn F. Hawk, MD1; Karen Jubanyik, MD1; Daniel P. Nogee, MD1; Thomas Durant, MD2; Kara L. Lynch, PhD3; Rushaben Patel, PharmD2; David Dinh, PharmD2; Andrew Ulrich, MD1; Gail D’Onofrio, MD1

Counterfeit Norco Poisoning Outbreak — San Francisco Bay Area, California, March 25–April 5, 2016

Kathy T. Vo, MD1,2; Xander M.R. van Wijk, PhD3; Kara L. Lynch, PhD3; Alan H.B. Wu, PhD3; Craig G. Smollin, MD1,2

Furanyl-Fentanyl Overdose Events Caused by Smoking Contaminated Crack Cocaine — British Columbia, Canada, July 15–18, 2016

Salman A. Klar, MPH1; Elizabeth Brodkin, MD1; Erin Gibson1; Shovita Padhi, MD1; Christine Predy2; Corey Green, MHSc1; Victoria Lee, MD1

Deaths Involving Fentanyl, Fentanyl Analogs, and U-47700 — 10 States, July–December 2016

Julie K. O’Donnell, PhD1; John Halpin, MD1; Christine L. Mattson, PhD1; Bruce A. Goldberger, PhD2; R. Matthew Gladden, PhD1
Fentanyl found alone and mixed with other drugs in DEA NFLIS data

Source: DEA NFLIS
Synthetic opioids increasingly involved in overdose deaths involving abused drugs

Source: Jones CM et al, JAMA 2018 (accepted)
Provisional mortality data show continued increases in synthetic opioid deaths

Source: CDC NHCS
Synthetic opioid deaths closely linked to illicit fentanyl supply

Source: DEA NFLIS and CDC NVSS)
## Factors Associated with Fentanyl Overdose

Known or suspected exposure to fentanyl in past year (n = 121)

<table>
<thead>
<tr>
<th>Behavior or experience</th>
<th>APR</th>
<th>95% CI</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular heroin use</td>
<td>4.07</td>
<td>1.24–13.3</td>
<td>0.020</td>
</tr>
<tr>
<td>Regular painkiller use</td>
<td>0.73</td>
<td>0.37–1.49</td>
<td>0.372</td>
</tr>
<tr>
<td>Current or past experience with MAT</td>
<td>1.13</td>
<td>0.70–1.84</td>
<td>0.612</td>
</tr>
<tr>
<td>Experiencing an overdose in the past 12 months</td>
<td>1.29</td>
<td>0.87–1.92</td>
<td>0.208</td>
</tr>
<tr>
<td>Witnessing someone else overdose in the past 12 months</td>
<td>1.11</td>
<td>0.69–1.90</td>
<td>0.692</td>
</tr>
</tbody>
</table>

### Additional factors
- Leaving CJ system, residential treatment, hospitalization
- In Ohio, history of high-dose opioid prescription was a risk factor

Source: Carroll et al, Int. J. Drug Policy, 2017 and CDC Epi-Aid 2015-2016 OH and MA
Awareness of Fentanyl

- Study of patients coming to urban academic ED in the Northeast between Aug 2016 – Dec 2016
- Diagnosis of suspected heroin overdose with naloxone administration
- N=30
- 73.3% reported injection; 23.3% intranasal; 3.3% both
- 100% reported seeking heroin and denied seeking fentanyl

Source: Griswold et al Clinical Toxicology, 2017
<table>
<thead>
<tr>
<th></th>
<th>Self Report</th>
<th></th>
<th>Urine Drug Testing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Heroin</td>
<td>30</td>
<td>100.0%</td>
<td>28</td>
<td>93.3%</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>16</td>
<td>53.3%</td>
<td>29</td>
<td>96.7%</td>
</tr>
<tr>
<td>Norfentanyl</td>
<td>n/a</td>
<td></td>
<td>28</td>
<td>93.3%</td>
</tr>
<tr>
<td>Acetylfentanyl</td>
<td>0</td>
<td>0.0%</td>
<td>9</td>
<td>30.0%</td>
</tr>
<tr>
<td>U-47700</td>
<td>0</td>
<td>0.0%</td>
<td>2</td>
<td>6.7%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>12</td>
<td>40.0%</td>
<td>20</td>
<td>66.7%</td>
</tr>
<tr>
<td>Methamphetamine</td>
<td>1</td>
<td>3.3%</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>Methadone</td>
<td>2</td>
<td>6.7%</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>1</td>
<td>3.3%</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>Tramadol</td>
<td>0</td>
<td>0.0%</td>
<td>7</td>
<td>23.3%</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>0</td>
<td>0.0%</td>
<td>6</td>
<td>20.0%</td>
</tr>
<tr>
<td>Hydrocodone</td>
<td>0</td>
<td>0.0%</td>
<td>5</td>
<td>16.7%</td>
</tr>
<tr>
<td>Alprazolam</td>
<td>3</td>
<td>10.0%</td>
<td>6</td>
<td>20.0%</td>
</tr>
<tr>
<td>Clonazepam</td>
<td>6</td>
<td>20.0%</td>
<td>11</td>
<td>36.7%</td>
</tr>
<tr>
<td>Lorazepam</td>
<td>0</td>
<td>0.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Griswold et al Clinical Toxicology, 2017
What we know about illicit drug supply contamination

- Not clear where in supply chain mixing is occurring, especially for non-opioid drugs (e.g., cocaine, methamphetamine)
- Economic incentive not to kill clients
- Some data suggests lower level dealers not aware of what is in product
- There is high variability in drug markets day to day
- Some people are seeking it and some are trying to avoid
## Economic drivers

<table>
<thead>
<tr>
<th>Drug</th>
<th>Cost per 1 KG to a Drug Trafficking Organization</th>
<th>Approximate number of KGs produced from original drug procurement</th>
<th>Wholesale price per KG in Massachusetts</th>
<th>Revenue to Drug Trafficking Organization from 1 KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heroin</td>
<td>$5,000-$7,000 (Purchased from Colombia)</td>
<td>1 KG</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>Pure Fentanyl</td>
<td>$3,300-$5,000 (Purchased from China)</td>
<td>16-24 KGs</td>
<td>$80,000</td>
<td>$1,280,000-$1,920,000</td>
</tr>
</tbody>
</table>

Source: DEA National Drug Threat Assessment
Economic drivers

• Advantages of fentanyl compared to heroin
  • Not dependent on a growing season
  • Cheap to produce
  • Readily available precursors (for now)
  • Existence of analogs allows circumvention of CSA
  • High potency makes shipping and evading detection much easier
  • New business models compared to heroin
Flow patterns

Source: DEA National Drug Threat Assessment
How people are getting fentanyl

- How people get fentanyl
  - Traditional DTO trafficking patterns – SWB, Northern Border
  - Illicit distribution networks once in U.S.
  - Express Consignment/Mail
    - Open web
    - Dark web

Source: DEA National Drug Threat Assessment
Federal public health response

- Surveillance
- Public awareness
- Public health and public safety collaborations
- Primary prevention
- Overdose prevention
- Treatment and recovery
- Policy
  - International scheduling
  - Domestic scheduling
  - Interdiction and supply reduction
  - International collaborations
Conclusions

• The emergence of fentanyl and illicit fentanyl analogs has significantly fueled the opioid crisis in the U.S. in recent years
• Fentanyl and other synthetic opioids are increasingly being found in the illicit drug supply and driving up deaths for opioids as well as other commonly abused drugs
• The proliferation of numerous fentanyl analogs and lack of awareness of what products are in the illicit drug supply makes reducing harm much more difficult
• Cartels and dealers have strong economic incentives to continue a market shift from heroin to synthetic opioids
• Strong public health and public safety collaboration will be required to combat this threat
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Stephen D. McConachie, Chief CBP Officer
U.S. Customs and Border Protection
phenethyl moiety – red portion
5 variations known at this time
piperdinyln moiety – purple portion
3 variations known at this time
propanoyl moiety – green portion
16 variations observed at this time
phenyl moiety – blue portion
8 variations known at this time

Total possible analogues –
red x purple x green x blue = 5 x 3 x 16 x 8 = 1,920
Fentanyl Safety Recommendations for First Responders

For the purposes of this document, fentanyl, related substances, and synthetic opioids (herein referred to as fentanyl) includes fentanyl analogues (e.g., acetylfentanyl, acrylfentanyl, carfentanil, fentanyl, fentanyl, met synthetic opioids [e.g., U-47700], and other drugs that may be mixed with these substances.

- The abuse of drugs containing fentanyl is killing Americans. Misinformation and inconsistent recommendations regarding fentanyl have resulted in confusion in the first responder community.
- You as a first responder (law enforcement, fire, rescue, and emergency medical services (EMS) personnel) are increasingly likely to encounter fentanyl in your daily activities (e.g., responding to overdose calls, conducting traffic stops, arrests, and searches).
- This document provides scientific, evidence-based recommendations to protect yourself from exposure.

What You Need to Know

- Fentanyl can be present in a variety of forms (e.g., powder, tablets, capsules, solutions, and rocks).
- Inhalation of airborne powder is most likely to lead to harmful effects, but is less likely to occur than skin contact.
- Incidental skin contact may occur during daily activities, but is not expected to lead to harmful effects if the contaminated skin is promptly washed off with water.
- Personal Protective Equipment (PPE) is effective in protecting you from exposure.
- Slow breathing or no breathing, drowsiness or unresponsiveness, and constricted or pinpoint pupils are the specific signs consistent with fentanyl intoxication.
- Naloxone is an effective medication that rapidly reverses the effects of fentanyl.

To protect yourself from exposure

- Wear gloves when the presence of fentanyl is suspected.
- AVOID actions that may cause powder to become airborne.
- Use a properly-fitted, NIOSH-approved respirator ("mask"), wear eye protection, and minimize skin contact when responding to a situation where small amounts of suspected fentanyl are visible and may become airborne.
- Follow your department guidelines if the scene involves large amounts of suspected fentanyl (e.g., distribution/storage facility, pill milling operation, clandestine lab, gross contamination, spill or release).

When exposure occurs

- Prevent further contamination and notify other first responders and dispatch.
- Do not touch your eyes, mouth, nose or any skin after touching any potentially contaminated surface.
- Wash skin thoroughly with cool water, and soap if available. Do NOT use hand sanitizers as they may enhance absorption.
- Wash your hands thoroughly after the incident and before eating, drinking, smoking, or using the restroom.
- If you suspect your clothing, shoes, and PPE may be contaminated, follow your department guidelines for decontamination.

If you or other first responders exhibit

- Slow breathing or no breathing
- Drowsiness or unresponsiveness
- Constricted or pinpoint pupils
- Move away from the source of exposure and call EMS.
- Administer naloxone according to your department protocols. Multiple doses may be required.
- If naloxone is not available, rescue breathing can be a lifesaving measure until EMS arrives. Use standard basic life support safety precautions (e.g., pocket mask, gloves) to address the exposure risk.
- If needed, initiate CPR until EMS arrives.

https://www.whitehouse.gov/ondcp/key-issues/fentanyl

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